DIFFERENTIATING ACUTE MYOCARDIAL INFARCTION FROM OTHER ECG
ABNORMALITIES

<u>Cross Reference to Related Application</u>

The application claims priority to U.S. Provisional Patent Application, Serial No,
60/430,462, filed December 2, 2002, for "Differentiating Acute Myocardial Infarction From
Other ECG Abnormalities". The entirety of that provisional application is hereby
incorporated herein by reference.

<u>Federal Support Clause</u>

This invention was made with government support under Grant Number 2 R44
HL064485-02 awarded by the National Institutes of Health, National Heart, Lung and Blood
Institute. The Government has certain rights in the invention.

<u>Background and Summary of the Invention</u>

The present invention relates to improving the detection of acute myocardial
infarction in the presence of certain ECG confounders, and more specifically to a method for
improving such detection effectively by modeling and then removing the effect of a selected
confounder on the ST segment of the PQRST ECG waveform.

Detection of acute myocardial infarction (AMI) in the presence of certain ECG
confounders is challenging both for commercial electrocardiograph (ECG) algorithms, and
for clinicians. The combined prevalence of Left Bundle Branch Block (LBBB), right
Bundle Branch Block (RBBB), Left Ventricular Hypertrophy (LVH), and Left Ventricular
Hypertrophy with STT <u>(from the ST-T portion of the ECG waveform)</u> Abnormality
(LVH/STT) in populations of patients with documented AMI can be significant, for
example, as large as about 25%. The presence of such a confounder presents a significant
hurdle to the correct and accurate detection of AMI evidence in an ECG waveform, and
typically does this in a variety of ways, including both the masking and mimicking of AMI's
ECG "signature", principally in the ST segment of a traditional PQRST ECG waveform.
This prevalence, and the